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Michael Coppedge, Staffan I. Lindberg,
Svend-Erik Skaaning and Jan Teorell

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Please address comments and/or queries for information to:

V-Dem Institute
Department of Political Science
University of Gothenburg
Sprängkullsgatan 19, PO Box 711
SE 40530 Gothenburg
Sweden
E-mail: contact@v-dem.net

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Measuring High Level Democratic Principles using the V-Dem Data*

Michael Coppedge
University of Notre Dame

Staffan Lindberg
University of Gothenburg

Svend-Erik Skaaning
Aarhus University

Jan Teorell
Lund University

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Abstract

While the definition of extended conceptions of democracy has been widely discussed, the measurement of these constructs has not attracted similar attention. In this paper we present new measures of polyarchy, liberal democracy, deliberative democracy, egalitarian democracy, and participatory democracy that cover most polities in the period 1900 to 2013. These indices are based on data from a large number of indicators collected through the Varieties of Democracy (V-Dem) project. A discussion of the theoretical considerations and the concrete formula linked to our aggregation of indicators and components into high level measures is followed by an illustration of how these measures reflect variations in quality of democracy, given the respective ideals, in 2012. In the conclusion we urge scholars to make use of the rich dataset made available by V-Dem.

Introduction

It is a widespread assumption in democratic theory that democracy is more than free and fair elections. Theorists have suggested different models of democracy that seek to expand electoral definitions of democracy by emphasizing liberal constitutionalism, popular participation, socio-economic equality, or deliberation (Held 2006; Cunningham 2002; Coppedge et al. 2011). However, while the definition of extended conceptions of democracy has been discussed in a plethora of studies, the measurement of these constructs has not attracted similar attention. In fact, nearly all cross-national measures of democracy attempt to capture electoral or liberal definitions (Coppedge et al. 2011).

Partial exceptions do exist: The Discourse Quality Index is developed to reflect deliberative democracy (Steiner 2012), and the Participation Enhanced Polity Score is meant to capture participatory democracy (Moon et al. 2006). In addition, the democratic quality indices by Ringen (2007), Morlino (2011), Bühlmann et al. (2012), and the Bertelsmann Foundation (2014) go beyond electoral and liberal features and attempt also to measure egalitarian and/or participatory aspects of democracy. However, even though all of these attempts are praiseworthy, there is clearly room to improve the validity and reliability of measurement and to measure these diverse aspects of democracy in a more extensive set of countries and years.

Against this backdrop, we present new measures of polyarchy, liberal democracy, deliberative democracy, egalitarian democracy, and participatory democracy that cover most polities in the period 1900 to 2013 (Coppedge et al. 2015a; Lindberg et al. 2014). These indices are based on data from a large number of indicators collected through the Varieties of Democracy project (Coppedge et al. 2015b; see also www.V-Dem.net). In what follows we briefly describe the V-Dem dataset with a special emphasis on the indicators and components tapping into liberal, egalitarian, participatory, and deliberative aspects of political regimes. Thereafter, we discuss the theoretical considerations and the concrete formula linked to our aggregation of these aspects with polyarchy into high level measures of liberal democracy, egalitarian democracy, participatory democracy, and deliberative democracy. Finally, we illustrate how these measures reflect variations in quality of democracy, given the respective ideals, in 2012.

The Varieties of Democracy (V-Dem) Dataset

Three features in particular characterize the uniqueness of the V-Dem data. The first is radical disaggregation: The abstract theoretical principles of democracy are translated into more than 400 detailed questions with well-defined response categories or measurement scales.¹ Second, the bulk of the data stems from almost 200 indicators collected from country experts, mostly academics *from* each country in question. The experts have been recruited based on their academic or other credentials as field experts in the area for which they code. (The questions are subdivided into 11 different areas of expertise, and most experts code only up to three areas.) Typically, a minimum of five independent experts respond to each question for each country and year going back to 1900. Thus, more than 2,600 experts from countries over the entire globe have helped us gather the data. While we select experts carefully, they clearly exhibit varying levels of reliability and bias. In addition, some periods are naturally more unknown than others, varying both across country-years and different sets of indicators. Therefore – and this is the third unique feature of V-Dem – we use Bayesian ordinal item response theory (IRT) modeling techniques to estimate latent country coding unit characteristics from our collection of expert ratings (see Pemstein et al. 2015). At present (i.e., April 2015), we have completed data collection for 173 countries or semi-sovereign territories.

In this article we focus on the measurement of five key principles or traditions that offer distinctive approaches to defining democracy—electoral, liberal, participatory, deliberative, and egalitarian. There is a thin and a thick version for each of these principles. The thin version, which we refer to as its “component,” includes only the most distinctive attributes of that principle, minimizing its overlap with the other principles. Thus, we refer to a “liberal component,” a “deliberative component,” and so on, which are designed to be conceptually distinct even though they may be empirically correlated.

- The *electoral* component of democracy embodies the core value of making rulers responsive to citizens through competition for the approval of a broad electorate during periodic elections. In the V-Dem conceptual scheme, the electoral component is fundamental; without it, we cannot call a regime “democratic” in any sense. At the same time, we recognize that holding elections alone is insufficient, and also that countries can have “democratic qualities” without being electoral democracies.

¹ A listing of all of the components, subcomponents, and indicators included in each of the democracy indices is available in the online appendix to this article. For details on all the over 400 indicators supplied by V-Dem, see the V-Dem Codebook v4 available at <https://v-dem.net>.

- The *liberal* component of democracy embodies the intrinsic value of protecting individual and minority rights against a potential “tyranny of the majority.” This is achieved through constitutionally protected civil liberties, strong rule of law, and effective checks and balances that limit the use of executive power.
- The *participatory* component embodies the values of direct rule and active participation by citizens in all political processes; it emphasizes non-electoral forms of political participation such as through civil society organizations and mechanisms of direct democracy.
- The *deliberative* component enshrines the core value that political decisions in pursuit of the public good should be informed by respectful and reasonable dialogue at all levels rather than by emotional appeals, solidary attachments, parochial interests, or coercion.
- The *egalitarian* component holds that material and immaterial inequalities inhibit the actual exercise of formal rights and liberties; hence a more equal distribution of resources, education, and health across various groups should enhance political equality.

Aggregating Components into High Level Indices

We also recognize the need for “full” democracy indices that reflect the varying schools of thought. The first step is to focus on electoral democracy. We have opted to capture Dahl’s (1998) concept of polyarchy, which identifies the following political institutions as constitutive of modern representative democracy: 1) elected officials, 2) free, fair, and frequent elections, 3) freedom of expression, 4) alternative sources of information, 5) associational autonomy, and 6) inclusive citizenship. The V-Dem Electoral Democracy index measures these features using the elected executive index (v2x_accex, based on 12 indicators), the clean elections index (v2xel_frefair, based on 8 indicators), the freedom of expression index (v2x_freexp_thick, based on 9 indicators, including 3 for alternative sources of information), the freedom of association index (v2x_frassoc_thick, based on 6 indicators), and the suffrage indicator (v2x_suffr); all range from 0 to 1. To construct the Electoral Democracy index we have used this aggregation formula:

Electoral Democracy (polyarchy)=

.1*electd executive + .1*clean elections + .1*freedom of expression + .1*freedom of association + .1*suffrage + .5*electd executive * clean elections * freedom of expression * freedom of association * suffrage.

In our view this aggregation rule reflects how the different parts are related to – and contribute to – the overarching concept. On the one hand, the five-way interaction between the different attributes, which receives half of the weight, causes a high score on one indicator to be dragged down by a low score on another. The logic is that to some extent the contribution of one attribute depends on the presence of the other. If, say, oppositional candidates are not allowed to run for election, or the elections are fraudulent, it does not matter much for the level of electoral democracy that all adults have voting rights. On the other hand, we think that it should matter something rather than nothing, which is the reason for giving some weight to the individual features. As a consequence, our formula is situated half way between a straight average and strict multiplication. It is thus a compromise between the two best known aggregation formulas in the literature, both allowing some “compensation” in one sub-component for lack of polyarchy in the others, but also punishing countries not strong in one sub-component.

We then construct the “thick” versions of each of the alternative principles of democracy. They all include one overlapping element - namely, *electoral democracy*, as we believe that no regime should be called a “democracy” of any type unless it builds on this foundation. In order to create measures that reflect the varying definitions of democracy, we thus need to combine the scores for our Electoral Democracy (polyarchy) Index with the scores for the components measuring deliberation, equality, participation, and liberal constitutionalism, respectively. This is not an easy task. Imagine two components, P=Polyarchy and HPC=High Principle Component (liberal, egalitarian, participatory, or deliberative),² that we want to aggregate into a more general high-level index, called an HLI (Deliberative Democracy Index, Egalitarian Democracy Index, and so on). For convenience, both P and HPC are scaled to a continuous 0-1 interval. Based on extensive deliberations among the authors and other members of the V-Dem research group, we have tentatively arrived at the following aggregation formula:

$$HLI = .25 * P^{1.6} + .25 * HPC + .5 * P^{1.6} * HPC$$

² The HPCs are indices based on the aggregation of a large number of indicators (liberal=23, egalitarian=8, participatory=21, deliberative=5).

Without going into detail, the underlying rationale for this formula, which we apply to all four HLIs, is the following. A “classical” definition, based on necessary and sufficient conditions, would put all the emphasis on the combination of Polyarchy and HPC, that is, the interaction term. According to this view, Deliberative Democracy, for example, requires deliberation *and* Polyarchy. However, we also see some legitimacy in “family resemblance” definitions, which allow for the HLI to be satisfied by Polyarchy *or* deliberation, corresponding to substitutability between the additive terms in the equation. In essence, by including both the additive and interaction terms and weighting them according to the number of components they reflect, we give equal weight to the classical and family resemblance definitions: half the weight to the additive terms and half to the multiplicative interaction.

Second, the more the country approximates Polyarchy, the more the combined HLI score for a country should reflect the unique component. This perspective is an incremental version of theoretical arguments presented in the literature saying that polyarchy or electoral democracy conditions should be satisfied before the other democracy component contribute much to the high level index values. At the same time, it reflects the view in the literature that when a certain level of polyarchy is reached, what matters in terms of, say, participatory democracy is how much of the participatory property of democracy the country has. This argument also resembles a widespread perspective in the quality of democracy literature emphasizing that the fulfillment of some baseline democracy criteria are needed before it makes sense to assess the quality of democracy. (For an overview, see Munck 2015.) The question then becomes at what rate this influence should increase. We arrived at the power parameter of 1.6 by defining an anchor point: When a country is a pure hybrid regime, i.e., the polyarchy score is .5 (in practice, this is largely the breaking point where countries would be considered electoral democracies in a minimal sense), and HPC is at its maximum (=1), the high level index score should be set at .53

Collectively, these thick versions of the five concepts are what we refer to as “varieties of democracy.” We argue that, taken together, these offer a fairly comprehensive accounting of the concept of democracy.

³ Define the power parameter as p . Setting Polyarchy=.5, HPC=1, and HLI=.5, and solving for $HLI = .25 * Polyarchy^p + .25 * HPC + .5 * Polyarchy^p * HPC$, $p = \log(\text{base } 0.5) \text{ of } .25 / .75 \approx 1.6$.

Descriptive Patterns

Figures 1-4 are three-dimensional scatter plots showing the relationships between each HLI, the Electoral Democracy Index (“Polyarchy”), and the corresponding High Principle Component in 2012. Selected well-known countries in all ranges of values are labeled. Each graph is rotated differently to enhance the visibility of the spikes for the selected countries. Although countries that are conventionally considered democratic, such as Britain, France, Switzerland, and the United States are found near the top of each figure and highly undemocratic countries such as Saudi Arabia, North Korea, and Eritrea are found near the bottom, there are differences. First, countries are more dispersed on the egalitarian component than on the other components. This makes it possible for Cuba to get a very high score on the egalitarian component but a low score on electoral democracy, and therefore a rather low score on egalitarian democracy. In the high corner of the same figure, the United Kingdom, France, and Switzerland score higher than the United States on egalitarian democracy, while the United States is near the top on liberal and deliberative democracy. Switzerland and Uruguay have the highest scores on participatory democracy due to their generous provisions for direct democracy mechanisms. On the deliberative democracy plot, China has an electoral democracy score close to those of North Korea and Turkmenistan, but its deliberative democracy score is noticeably higher because North Korea and Turkmenistan had far more autocratic leaders in 2012. Many other comparisons could be made, but these help establish the validity of these indices.

Figure 1. The relationships between Egalitarian Democracy Index, the Electoral Democracy Index (“Polyarchy”), and Egalitarian Component in 2012.

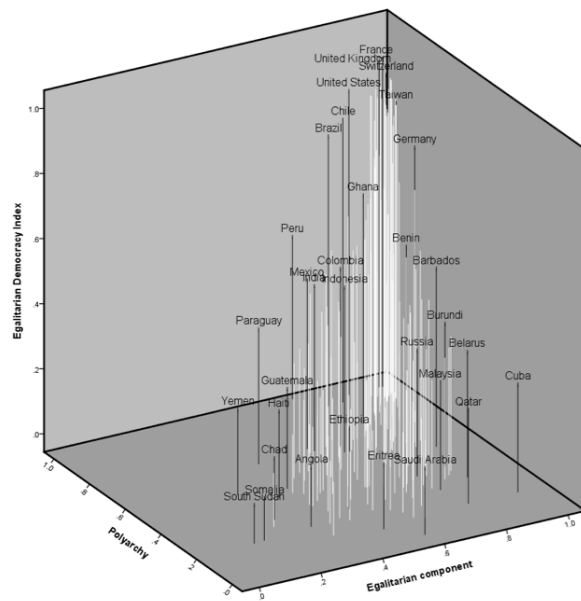


Figure 2. The relationships between Deliberative Democracy Index, the Electoral Democracy Index (“Polyarchy”), and Deliberative Component in 2012.

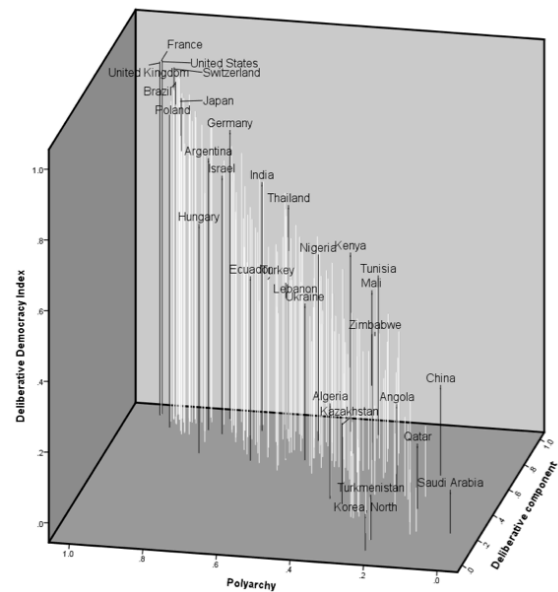


Figure 3. The relationships between Liberal Democracy Index, the Electoral Democracy Index (“Polyarchy”), and Liberal Component in 2012.

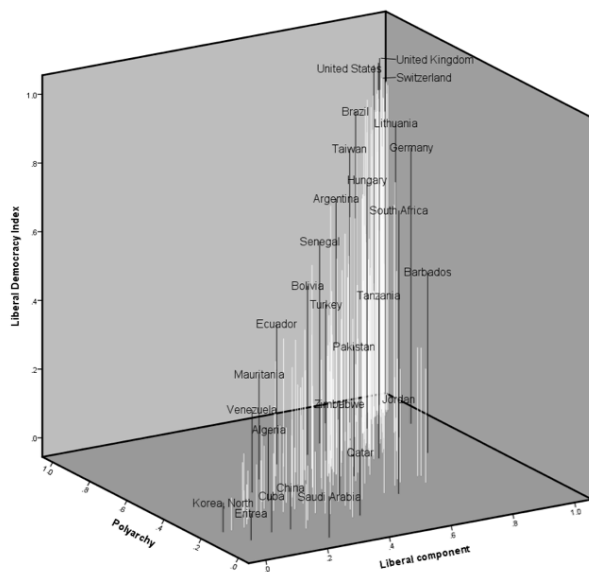
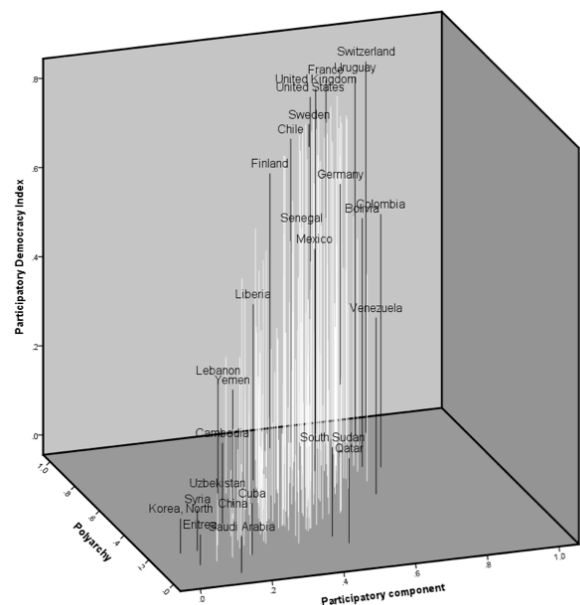


Figure 4. The relationships between Participatory Democracy Index, the Electoral Democracy Index (“Polyarchy”), and Participatory Component in 2012.



Conclusion

Over the recent decades we have witnessed an increased interest from academics, NGOs, and politician in the measurement of conceptions of democracy that go beyond electoral aspects. However, country-specific assessments have hardly been followed by the development of large cross-national datasets aimed at capturing these non-electoral aspects. In this short paper, we have demonstrated that the V-Dem dataset provides a large number of relevant indicators, covering most polities of the world from 1900 and onwards. Furthermore, we have presented our aggregation scheme, and we have shown the resulting scores can be used to capture similarities and differences in democratic quality across space and time, as measured by the different high level indices for liberal democracy, deliberative democracy, egalitarian democracy, and participatory democracy, respectively.

These graphs revealed interesting patterns. Nonetheless, for many purposes, we recommend scholars and practitioners alike to make use of the more nuanced disaggregated data made available by V-Dem. Nuances get lost when many indicators are combined into sub-components, components, and high level indices. Moreover, many aggregation rules are possible; we do not claim that the ones presented here are the best for every application, although in our experience most aggregation rules yield high correlated scores with these data. We are ready to enter open-minded discussions about these issues. Most importantly, the raw data on indicators and the indices, along with 95 % confidence bounds, will be available by December 31, 2015 for everyone to use as they see fit.

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Appendix 1: List of all of the components and subcomponents included in each index

Index/Indicator Name Components, subcomponents, indicators, and aggregation rules

Electoral Democracy Index (v2x_polyarchy)	.1*v2x_suffr + .1*v2xel_frefair + .1*v2x_accex + .1*v2x_frassoc_thick + .1*v2x_freexp_thick + .5* v2x_suffr * v2xel_frefair * v2x_accex * v2x_frassoc_thick * v2x_freexp_thick				
Freedom of expression expanded	v2x_freexp_thick	Point estimates from Bayesian factor analysis model			
Government censorship effort - Media		v2mecenefm			
Harassment of journalists		v2meharjrn			
Media self-censorship		v2meslfcen			
Freedom of discussion for men		v2cldiscm			
Freedom of discussion for women		v2cldiscw			
Freedom of academic and cultural expression		v2clacfree			
Media bias		v2mebias			
Print/broadcast media critical		v2mecrit			
Print/broadcast media perspectives		v2merange			
Freedom of association (thick)	v2x_frassoc_thick	Point estimates from Bayesian factor analysis model			
Party Ban		v2psparban			
Barriers to parties		v2psbars			
Opposition parties autonomy		v2psoppaut			
Elections multiparty		v2elmulpar			
CSO entry and exit		v2cseeorgs			
CSO repression		v2csreprss			
Share of adult population with suffrage	v2x_suffr				
Percent of adult population with suffrage		v2elsuffrage			
Clean elections	v2xel_frefair	Point estimates from Bayesian factor analysis model. Since the bulk of these indicators are only observed in election years, the index scores have then been repeated within election regime periods (as defined by v2x_elecreg)			
EMB autonomy		v2elembaut			
EMB capacity		v2elembcap			
Election voter registry		v2elrgstry			
Election vote buying		v2elvotbuy			
Election other voting irregularities		v2elirreg			
Election government intimidation		v2elintim			

Election other electoral violence		v2elpeace			
Election free and fair		v2elfrfair			
Elected executive (de jure)	v2x_accex	<p>Six different chains of appointment/selection are taken into account. First, whether the head of state is directly elected (a=1) or not (a=0). Second, the extent to which the legislature is popularly elected (b), measured as the proportion of legislators elected (if legislature is unicameral), or the weighted average of the proportion elected for each house, with the weight defined by which house is dominant (if legislature is bicameral). Third, whether the head of state is appointed by the legislature, or the approval of the legislature is necessary for the appointment of the head of state (c1=1, otherwise 0). Fourth, whether the head of government is appointed by the legislature, or the approval of the legislature is necessary for the appointment of the head of government (c2=1, otherwise 0). Fifth, whether the head of government is appointed by the head of state (d=1) or not (d=0). Sixth, whether the head of government is directly elected (e=1) or not (e=0). Define hosw as the weight for the head of state. If the head of state is also head of government (v2exhoshog==1), hosw=1. If the head of state has more power than the head of government over the appointment and dismissal of cabinet ministers, then hosw=1; if the reverse is true, hosw=0. If they share equal power, hosw=.5. Define the weight for the head of government as hogw=1-hosw.</p> <p>$hosw * [\max(a1, b * c1)] + hogw * [\max(a1 * d, b * c1 * d, a2, b * c2)]$</p>			
Lower chamber elected		v2lgello			
Upper chamber elected		v2lgelecup			
Legislature dominant chamber		v2lgdomchm			
HOS selection by legislature in practice		v2exaphos			
HOS appointment in practice		v2expathhs			
HOG selection by legislature in practice		v2exaphogp			
HOG appointment in practice		v2expathhg			
HOS appoints cabinet in practice		v2exdfcbhs			
HOG appoints cabinet in practice		v2exdjcbhg			
HOS dismisses ministers in practice		v2exdfdmhs			
HOG dismisses ministers in practice		v2exdfdshg			
HOS appoints cabinet in practice		v2exdfcbhs			
Liberal Democracy Index (v2x_libdem)	$.25 * v2x_polyarchy^{1.6} + .25 * v2x_liberal + .5 * v2x_polyarchy^{1.6} * v2x_liberal$				
Electoral Democracy Index	v2x_polyarchy				
Liberal Component Index	v2x_liberal	Average			
Equality before the law and individual liberty		v2xcl_rol	Point estimates from Bayesian factor analysis model		

Rigorous and impartial public administration			v2clrspct		
Transparent laws with predictable enforcement			v2cltrnslw		
Access to justice for men			v2clacjstm		
Access to justice for women			v2clacjstw		
Property rights for men			v2clprptym		
Property rights for women			v2clprptyw		
Freedom from torture			v2cltort		
Freedom from political killings			v2clkill		
Freedom from forced labor for men			v2clslavem		
Freedom from forced labor for women			v2clslavef		
Freedom of religion			v2clrelig		
Freedom of foreign movement			v2clfmov		
Freedom of domestic movement for men			v2cldmovm		
Freedom of domestic movement for women			v2cldmovw		
Judicial constraints on the executive		v2x_jucon	Point estimates from Bayesian factor analysis model		
Executive respects constitution			v2exrescon		
Compliance with judiciary			v2jucomp		
Compliance with high court			v2juhcomp		
High court independence			v2juhcind		
Lowercourtindependence			v2juncind		
Legislative constraints on the executive		v2xlg_legcon	Point estimates from Bayesian factor analysis model		
Legislature questions officials in practice			v2lgqstexp		
Executive oversight			v2lgotovst		
Legislature investigates in practice			v2lginvstp		
Legislature opposition parties			v2lgoppart		
Deliberative Democracy Index (v2x_delibdem)	$.25 * v2x_polyarchy^{1.6} + .25 * v2x_delib + .5 * v2x_polyarchy^{1.6} * v2x_delib$				
Electoral Democracy Index	v2x_polyarchy				
Deliberative Component Index	v2xdl_delib	Point estimates from Bayesian factor analysis model			
Reasoned justification		v2dlreason			
Common good		v2dlcommon			
Respect counterarguments		v2dlcountr			

Range of consultation		v2dlconslt			
Engaged society		v2dlengage			
Egalitarian democracy Index (v2x_egalDEM)	$.25 * v2x_polyarchy^{1.6} + .25 * v2x_egal + .5 * v2x_polyarchy^{1.6} * v2x_egal$				
Electoral Democracy Index	v2x_polyarchy				
Egalitarian Component Index	v2x_egal	Point estimates from Bayesian factor analysis model			
Power distributed by socioeconomic position		v2pepwrse			
Power distributed by social group		v2pepwrso			
Social group equality in respect for civil liberties		v2clsocgrp			
Educational equality		v2peedueq			
Health equality		v2pehealth			
Power distributed by gender		v2pepwrge			
Encompassing-ness		v2dlencmps			
Means-tested vs. universalistic		v2dlunivl			
Participatory Democracy Index (v2x_partipDEM)	$.25 * v2x_polyarchy^{1.6} + .25 * v2x_partip + .5 * v2x_polyarchy^{1.6} * v2x_partip$				
Electoral Democracy Index	v2x_polyarchy				
Participatory Component Index	v2x_partip	Average			
Civil society participation		v2x_cspart			
Candidate selection--National/local			v2pscnslnl		
CSO consultation			v2cscnsult		
CSO participatory environment			v2csptrcpt		
CSO womens participation			v2csgender		
Direct Popular Vote Index		v2xdd_dd			
Initiatives permitted			v2ddlegci		
Initiatives signatures %			v2ddsigcip		
Initiatives signature-gathering time limit			v2ddgrtlci		
Initiatives signature-gathering period			v2ddgrgpci		
Initiatives level			v2ddlevci		
Initiatives participation threshold			v2ddbindci		
Initiatives approval threshold			v2ddthreci		
Initiatives super majority			v2ddspmjci		
Initiatives administrative threshold			v2dddistci		

Initiatives permitted			v2ddlegci		
Occurrence of citizen-initiative this year			v2ddciniyr		
Local Government		v2xel_locelec	First, local government elected (v2ellocelc) is recoded so that 0=none elected, 1=only executive elected, 2=only assembly elected or both assembly and executive elected. This new construct is then scaled to vary from 0-1 and multiplied by local offices relative power (v2ellocpwr) scaled to vary from 0-1.		
Local government elected			v2ellocelc		
Local offices relative power			v2ellocpwr		
Local government exists			v2ellocgov		
Regional Government		v2xel_regelec	First, regional government elected (v2elsrgel) is recoded so that 0=none elected, 1=only executive elected, 2=only assembly elected or both assembly and executive elected. This new construct is then scaled to vary from 0-1 and multiplied by regional offices relative power (v2elrgpwr) scaled to vary from 0-1.		
Regional government elected			v2elsrgel		
Regional offices relative power			v2elrgpwr		
Regional government exists			v2elreggov		